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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,728	09/30/2003	Daniel Wayne Bedell	HSJ9-2003-0126US1	2947
74216	7590	12/26/2007		
The Patent Law Office of Larry Guernsey P.O. Box 720247 San Jose, CA 95172			EXAMINER TUGBANG, ANTHONY D	
			ART UNIT	PAPER NUMBER
			3729	
			MAIL DATE	DELIVERY MODE
			12/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/676,728

Applicant(s)

BEDELL ET AL.

Examiner

A. Dexter Tugbang

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The applicant(s) amendment filed on October 8, 2007 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. The rejections below are maintained for the reasons set forth below and repeated merely for the applicant(s) convenience.

### ***Election/Restrictions***

3. Claims 11, 12 and 14 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 9, 2007.

### ***Oath/Declaration***

4. The Oath and/or Declaration, filed on October 8, 2007 has been approved by the examiner.

### ***Claim Rejections - 35 USC § 103***

5. Claims 1, 2 and 4 through 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al 6,278,591 in view of Cohen 5,141,623.

Chang discloses a method of making a write pole top for a magnetic head comprising: fabricating a P1 pole (e.g. 302), coils (e.g. 366, 372) and a P2 flux shaping layer (e.g. 312);

depositing a P3 layer (e.g. 342) on the P2 flux shaping layer by plating; shaping the P3 layer into a P3 pole tip (at the ABS in Fig. 63); and encapsulating the P3 pole top layer in an encapsulating material (e.g. 380).

Chang does not teach that the P3 layer is patterned by depositing a CMP stop layer on the P3 layer, depositing at least one sacrificial layer on the CMP stop layer, and removing the at least one sacrificial layer to leave the P3 pole tip.

Cohen discloses a pole patterning process that includes depositing a CMP stop layer (e.g. 29, 30) on a P3 layer (e.g. 24 in Fig. 3J), depositing at least one sacrificial layer (e.g. 32) on the CMP stop layer, and removing the at least one sacrificial layer to leave the P3 pole tip (see sequence of Figs. 3G to 3J).

Regarding Claim(s) 2, Cohen further teaches within the process that the P3 layer material is NiFe (col. 5, lines 30-31).

Regarding Claim(s) 4 through 6, Cohen further teaches that the sacrificial layer is NiFe (col. 5, lines 60-65) and also includes a seed layer (e.g. 27). The sacrificial layer is created by forming a cavity surrounded by photo-resist material (e.g. 29) where the sacrificial material fills or is deposited in the cavity.

Regarding Claim(s) 7 through 9, Cohen further teaches shaping of the P3 layer is done by ion milling where the sacrificial layer is a mask and the CMP stop layer is a secondary mask. The ion milling is used to bevel sides of the P3 pole tip and is beveled at an angle of 15° (see Figs. 3F to 3J, and the Tilt angle at Table in col. 6).

The benefits of the overall pole patterning process of Cohen allows better pole alignment between P3, P2 and P1 with increased data storage densities (col. 3, lines 3-5) and provides a

CMP stop layer and sacrificial layer that is more controllable and readily removable (col. 2, lines 66-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Chang by utilizing the pole patterning process of Cohen, to provide the benefits of better pole alignment with increased data storage densities and a patterning technique that is more controllable and readily removable.

6. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Change et al in view of Cohen et al, as applied to Claim 1 above, and further in view of Tran et al 5,853,900.

Chang, as modified by Cohen, discloses a manufacturing method as relied upon above. The modified Chang method does not teach that the CMP stop layer is made of  $\text{Al}_2\text{O}_3$ , i.e. aluminum oxide, and that the CMP stop layer matches the material of the encapsulating material.

It is noted that the encapsulating material of Chang is an insulating material (see Chang col. 18, lines 42-44) and one of the materials of the CMP stop layer material of Cohen is a photoresist.

Tran shows that it is known to utilize aluminum oxide as a photoresist material (col. 7, lines 6-14) and that aluminum oxide is a well known and conventional insulating material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Chang by utilizing aluminum oxide ( $\text{Al}_2\text{O}_3$ ) as the material for both the CMP stop layer and the encapsulating material to provide the necessary patterning material in the shaping of the P3 layer and to insulate the P3 layer.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al in view of Cohen et al, as applied to Claim 1 above, and further in view of Ohtsu et al 20040052009.

Chang, as modified by Cohen, discloses a manufacturing method as relied upon above. The modified Chang method does not teach that the CMP stop layer is made of  $\text{Al}_2\text{O}_3$ , i.e. aluminum oxide, and that the CMP stop layer matches the material of the encapsulating material.

It is noted that the encapsulating material of Chang is an insulating material (see Chang col. 18, lines 42-44) and one of the materials of the CMP stop layer material of Cohen is a photoresist.

Tran shows that it is known to utilize aluminum oxide as a photoresist material (col. 7, lines 6-14) and that aluminum oxide is a well known and conventional insulating material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Chang by utilizing aluminum oxide ( $\text{Al}_2\text{O}_3$ ) as the material for both the CMP stop layer and the encapsulating material to provide the necessary patterning material in the shaping of the P3 layer and to insulate the P3 layer.

#### ***Response to Arguments***

8. The applicant(s) arguments filed on October 8, 2007 have been fully considered, but they are not persuasive.

The applicant(s) first argue that the prior art does not teach a write pole for "perpendicular recording".

The limitations of “perpendicular recording” has no impact on the process of making the write pole, but has to do with the manner with which the write pole operates, e.g. how the bits of information are transferred from the write pole to the media. Additionally, with respect to the process steps being drawn to a write pole “for perpendicular recording”, because these limitations are recited in the preamble of the claims, they are merely intended use limitations and have not been given patentable weight since the body of the claims (i.e. the process steps recited at lines 3-9 of Claim 1) do not depend upon the preamble for completeness and the process steps are able to stand alone. *In re Hirao*, 535 F.2d 67 190 USPQ 15 (CCPA 1976).

The applicant(s) next argue that with respect to the merits of Chang et al, Chang does not teach P1, a P2 flux shaping layer, and a P3 layer.

The examiner most respectfully disagrees and the terms of P1, P2 flux shaping layer and P3, are in their broadest sense, *three different magnetic pole layers*. The claims do nothing to distinguish these terms in any other manner.

(i) P1

Element 302, while it is referred to by Chang as a first shield layer, is inherently a magnetic pole because it is magnetic and is made from a magnetic material. As evidence of inherency, Chen (U.S. Patent 6,469,875 cited on PTO-892 in the last Office Action) uses element 14 as an exact equivalent of element 302 in Chang. Element 14 in Chen is referred to as a bottom shield S1, which is the very same reference Chang uses, and S1 is a shared pole and is made from a magnetic material (Chen, col. 3, lines 34+).

(ii) P2 flux shaping layer

Element 312 of Chang is a P2 flux shaping layer because it is a magnetic pole, i.e. bottom pole tip, and because magnetic layers are inherently capable of flux shaping the magnetic field during operation. As extrinsic evidence, the examiner cites the references to Komuro et al (U.S. Patent 6,034,847, col. 18, lines 20+) and Hanaoka (U.S. Patent 4,141,052, Figs. 3 and 4, col. 2, lines 62+), which clearly document that it is conventional to have magnetic poles shape the flux of a magnetic field during operation.

(iii) P3

Element 342, referred to by Chang as the second pole tip layer, exists as a P3 layer because it is a separate magnetic layer, separate magnetic pole, and simply a separate element from elements 302 and 312.

Accordingly, for at least the reasons stated above, the limitations of P1, P2 flux shaping layer, P3, are met by Chang with the elements 302, 312 and 342, respectively.

More problematic for the applicant(s) is that the arguments they present are much more specific than what is claimed. For example, the features that a write pole for "perpendicular recording" must have a trailing write pole, a leading return, etc., as asserted from page 1 of their specification, are nowhere recited in the claims. Or that a P2 flux shaping layer has the purpose that is to shape and direct the magnetic flux into the P3 layer, also is not recited in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

*Conclusion*

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/676,728  
Art Unit: 3729

Page 9

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**/A. Dexter Tugbang/  
Primary Examiner  
Art Unit 3729**

December 18, 2007